

In the Claims

Claim 1 (Currently amended): A method for monitoring the amplification of a plurality of different target polynucleotides in a single reaction chamber, comprising:

- (i) carrying out a reaction for the amplification of a plurality of different target polynucleotides;
- (ii) during the amplification reaction, contacting different amplified products with a molecule that binds to or interacts with a polynucleotide, the molecule being located in a spatially defined position or being determined via a non-linear or non-fluorescent technique; and
- (iii) detecting the interaction between the amplified product and the molecule by measuring changes in applied radiation.

Claim 2 (Previously presented): The method according to claim 1, wherein the molecule is immobilized to a support material.

Claim 3 (Previously presented): The method according to claim 1, wherein the molecule is a polymerase enzyme.

Claim 4 (Previously presented): The method according to claim 1, wherein the molecule is a polynucleotide, at least a portion of which is complementary to a region on an amplified product.

Claim 5 (Previously presented): The method according to claim 4, wherein the molecule acts as a primer for the amplification reaction.

Claim 6 (Previously presented): The method according to claim 4, wherein the molecule does not act as a primer for the amplification reaction.

Claim 7 (Previously presented): The method according to claim 1, wherein the detecting is carried out by detection of an evanescent field.

Claim 8 (Previously presented): The method according to claim 1, wherein the detecting is carried out by applying surface electromagnetic waves and monitoring changes in the waves.

Claim 9 (Previously presented): The method according to claim 7, wherein the detecting is carried out by measuring changes in surface plasmon resonance.

Claim 10 (Previously presented): The method according to claim 9, wherein the molecule comprises a metallic particle.

Claim 11 (Previously presented): The method according to claim 1, wherein the detecting is carried out by detecting surface enhanced Raman scattering.

Claim 12 (Previously presented): The method according to claim 4, wherein the detecting is achieved by detecting an intercalating label that binds to the hybrid formed between the amplified product and polynucleotide during the amplification reaction.

Claim 13 (Previously presented): The method according to claim 12, wherein the intercalating label is fluorescent when bound to the hybrid.

Claim 14 (Previously presented): The method according to claim 1, wherein the detecting is achieved by monitoring changes in electrical conductance and/or capacitance.

Claim 15 (Previously presented): The method according to claim 1, wherein the amplification reaction occurs in a sealed micro-flow cell.

Claims 16-19 (Canceled)

Claim 20 (New): The method according to claim 1, wherein the molecule in the spatially defined location is determined via a non-linear or a non-fluorescent technique.